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Comparison of pre-pandemic normal period and COVID-19 pandemic period births: Quantitative outlook

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Abstract

Aim: In this study, we aimed to determine whether the COVID-19 pandemic has a negative effect on quantitative birth data by comparing it with the pre-pandemic normal period.

Material and Methods: In our tertiary center, 4743 births in the March 2019-February 2020 pre-pandemic normal period were quantitatively compared and analyzed with 4522 births in the March 2020- February 2021 pandemic period.

Results: In the pandemic period, the number of births decreased by 4.66% compared to the normal period. The mean gestational week was prolonged during the pandemic period. In pre-pandemic and pandemic periods, there was no statistically significant difference between the mode of delivery, cesarean section type, preterm birth, stillbirth, newborn birth weight and Apgar score (≤7).

Discussion: When we evaluated the annual quantitative data of the normal and pandemic periods, it was seen that the COVID-19 pandemic did not have a significant negative effect on births, except for a slight decrease in the birth rate. However, this does not mean that COVID-19 protection and hygiene measures will be abandoned until the pandemic process is over.

Keywords
COVID-19, Pandemia, Birth, Newborn

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Introduction

Coronavirus disease (COVID-19) was detected in Wuhan, China in December 2019, but was declared a "pandemic" in the world by the World Health Organization (WHO) in March 2020. Simultaneously, the first case was detected in Turkey in March 2020, and the Ministry of Health declared a nationwide "pandemic". Since then, COVID-19 continues to threaten the health and the socioeconomic status of societies. One of the segments exposed to the epidemic is pregnant women. In this study, we aimed to compare the pandemic period with the normal (pre-pandemic) period and see whether the COVID-19 pandemic has a negative effect on births.

Material and Methods

The births over 500 gr or 22 weeks in the normal pre-pandemic period from March 2019 to February 2020 and during the pandemic period from March 2020 to February 2021 in the Gynecology and Obstetrics Clinic of Istanbul Training and Research Hospital, a tertiary center in Istanbul/Turkey, were included in the study. The data of the cases such as age, week of birth, mode of delivery, newborn characteristics were documented and analyzed retrospectively. Statistical analyzes were performed using SPSS version 17.0 program. The conformity of the variables to the normal distribution was examined using histogram graphics and the Kolmogorov-Smirnov test. Mean, standard deviation and median values were used in descriptive analyses. Categorical variables were compared with the Pearson's Chi-square test. In cases where the data did not show a normal distribution, paired groups were evaluated with the Mann-Whitney U test. Cases with a P-value below 0.05 were considered statistically significant. The study was approved by the Ethics Committee of Istanbul Training and Research Hospital (Ethics Committee No:2021/2919).

Results

The median maternal age was 28 years in both periods.

Pre-pandemic normal period and pandemic period birth data are shown in Table 1. In our center, there were 4743 births in the normal period and 4522 births in the pandemic period. In the normal period, there were 33 twins, 2 triplets, 1 quadruplet, and in the pandemic period, 26 twins and 1 triplet were born. There was no statistically significant difference between delivery mode, cesarean section type, singular and multiple births, stillbirths and preterm births in both periods.

During the pandemic, the total number of of births decreased by 4.66% compared to the normal period. It was determined that the mean gestational age in the pandemic period was higher than during the normal period ($p<0.001$). However, when the periods were analyzed according to the lower week groups, no significant difference was found between term and preterm deliveries (Table 2).

Newborns were evaluated in terms of 1st and 5th Apgar scores, while there was no difference between the 1st-minute scores, the 5th-minute average Apgar score was found to be higher in the normal period ($p<0.001$) (Table 3).

However, there was no difference below 7 for both periods ($p>0.05$).

Table 2. Comparison of periods by week of birth

		Normal Period		Pandemic Period		p
		n	%	n	%	
Term	≥37	4326	91.21	4131	91.35	
Preterm	34-36	266	5.61	253	5.59	
	32-33	46	0.97	53	1.17	0.478[1]
	28-31	62	1.31	43	0.95	
	<28	43	0.90	42	0.93	
		Mean.±SD	Median	Mean.±SD	Median	
Overall		38.75±2.30	40	38.90±2.31	40	<0.001[2]

[1]Chi-Square test, [2]Mann Whitney U test

Table 1. Birth and newborn data of normal and pandemic period

		Normal Period		Pandemic Period	
		n	%	n	%
Delivery modes	Normal	2572	54.23	2515	55.62
	Instrumental	39	0.82	21	0.46
	Caesarean	2132	44.95	1986	43.92
	Total	4743		4522	
Caesarean	Primer	730	34.24	646	32.53
	Repeated	1402	65.76	1340	67.47
Baby	Male	2435	51.34	2315	51.19
	Female	2308	48.66	2207	48.81
	Live	4685	98.78	4456	98.54
	Dead	58	1.22	66	1.46
		Mean.±SD	Median	Mean.±SD	Median
Age (maternal)		28.13±6.18	28	28.56±6.22	28
Gestational age (week)		38.75±2.30	40	38.90±2.31	40
Baby	Apgar score,1st minute	8.02±1.30	8	8.04±1.28	8
	Apgar score,5th minute	8.70±1.25	9	8.61±1.23	9
	Birthweight (gr)	3176.53±602.48	3230	3187.59±621.65	3240

Table 3. Comparison of birth and newborn data

		Normal Period		Pandemic Period		p
		n	%	n	%	
Delivery modes	Normal	2572	54.23	2515	55.62	0.051[1]
	Instrumental	39	0.82	21	0.46	
	Caesarean	2132	44.95	1986	43.92	
Caesarean	Primer	730	34.24	646	32.53	0.244[1]
	Repeated	1402	65.76	1340	67.47	
Baby	Live	4685	98.78	4456	98.54	0.322[1]
	Dead	58	Oca.22	66	Oca.46	
		Mean.±SD	Median	Mean.±SD	Median	
	Apgar score, 1st minute	8.02±1.30	8	8.04±1.28	8	0.865[2]
	Apgar score, 5th minute	8.70±1.25	9	8.61±1.23	9	<0.0012*
	Birthweight (gr)	3176.53±602.48	3230	3187.59±621.65	3240	0.138[2]

1Chi-Square test, 2Mann-Whitney U test. *No difference ≤7 points (p>0.05)

Discussion

In our study conducted in one-year periods, it seems that the COVID-19 pandemic did not have a negative effect on normal and cesarean deliveries, primary and repeated cesarean sections, live and stillbirths, term and preterm deliveries, birth weight and Apgar score (below 7). Similar results were also reported by McDonnell et al [1], de Melo et al [2], Herzberger et al [3], Wood et al [4]. Khalil et al [5] and Chmielewska et al [8], except for stillbirth results, reported the same findings. Although Khalil et al [5] and Chmielewska et al [6] reported an increase in stillbirth during the pandemic, it is currently unclear whether this is a direct or indirect result of COVID-19.

While there was no significant periodical difference between our term and preterm deliveries, it was observed in our study that the average gestational week was prolonged during the pandemic period. Wood et al [4], on the other hand, did not detect a difference between the periods in the mean gestational age. However, their study covers a period of 3 months.

When we look at our total number of births, there was a 4.66% decrease in the pandemic period compared to the pre-pandemic period. In other periodical comparative studies in the literature, the number of births is close to each other [3-5]. This decrease in our population is believed to be due to the fact that pregnant women prefer less dense and small health centers instead of our busy center for giving birth due to community-based concern and fear of COVID-19. As a matter of fact, it has been reported that COVID-19 has negative psychosocial effects on pregnant women and leads to a significant decrease in prenatal care visits [6-8]. This may also explain the prolongation of the mean gestational week during the pandemic period.

Conclusions

Except for the decrease in the total number of births in our population, the COVID-19 pandemic does not seem to have a negative effect on the mode of delivery, primary/repeat cesarean section, preterm birth, stillbirth, birth weight and Apgar score. However, meticulous application of protection methods such as mask, distance, hygiene and vaccination should not be abandoned until the pandemic ends.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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References

1. McDonnellS, McNamee E, Lindow SW, O'Connell MP. The impact of the Covid-19 pandemic on maternity services: A review of maternal and neonatal outcomes before, during and after the pandemic. Eur J Obstet Gynecol Reprod Biol. 2020;255:172-6.

2. De Melo GC, De Araujo KCGM. COVID-19 infection in pregnant women, preterm delivery, birth weight, and vertical transmission a systematic review and meta-analysis. Cad Saude Publica. 2020;36(7):e00087320. DOI: 10.1590/0102-311x00087320.

3. Herzberger EH, Efros O, Herzberger S, Biron-Shental T, Shechter-Maor G. Differences in obstetric healthcare utilization and delivery complications before and after the COVID-19 pandemic-a retrospective study. J Matern Fetal Neonatal Med. 2021;28:1-6.

4. Wood R, Sinnott C, Goldfarb I, Clapp M, McElrath T, Little S, Preterm Birth During the Coronavirus Disease 2019 (COVID-19) Pandemic in a Large Hospital System in the United Statets. 2021;137(3):403-4.

5. Khalil A, von Dadelszen P, Draycott T, Ugwumadu A, O'Brien P, Magee L. Change in the Incidence of Stillbirth and Preterm Delivery During the COVID-19 Pandemic. JAMA. 2020;324(7):705-6.

6. Chmielewska B, Barratt I, Townsend R, Kalafat E, van der Meulen J, Gurol-Urganci I, et al. . Effects of the COVID-19 pandemic on maternal and perinatal outcomes: a systematic review and meta-analysis. Lancet Glob Health. 2021; 9:e759-72.

7. Kotlar B, Gerson E, Petrillo S, Langer A, Tiemeier H. The impact of the COVID-19 pandemic on maternal and perinatal health: a scoping review. Reprod Health. 2021;18:10. DOI:10.1186/s12978-021-01070-6.

8. Sahin BM, Kabakci EN. The experiences of pregnant women during the COVID-19 pandemic in Turkey: A qualitative study. Women Birth. 2021;34(2):162-9.

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